

C l a i m s

1. A piston pump (2) for pumping out oil from a subsurface structure via an oil well, said pump (2) being connected to control- and driving means for controlling and driving the pump (2), respectively, when placed in the well, characterised in that the pump (2) has four piston assemblies (a, b, c, d) that, by means of a fixed interlock (36) between two opposite piston assemblies (b, d), and by means of a cog wheel interlock (38, 38') between said two piston assemblies (b, d) and the other two opposite piston assemblies (a, c), are provided as two oncoming piston assembly pairs (b, d) and (a, c).
2. The piston pump (2) according to claim 1, characterised in that the piston pump includes, in sequence:
- a pump cylinder section (8);
 - an interlock section (10); and
 - a drive cylinder section (12);
- all of which are provided with a centrally provided oil outlet channel (18);
- wherein the pump cylinder section (8), the interlock section (10) and the drive cylinder section (12) internally are provided with four axial cylinder assemblies (A, B, C, D) distributed peripherally about the oil outlet channel (18), each cylinder assembly (A, B, C, D) comprising:
- a pump cylinder (22a, 22b, 22c, 22d) in the pump cylinder section (8);
 - an inwardly open movement region (24a, 24b, 24c, 24d) in the interlock section (10); and

- a drive cylinder (26a, 26b, 26c, 26d) in the drive cylinder section (12);

- wherein each cylinder assembly (A, B, C, D) internally is provided with an axially movable piston assembly (a, b, c, d), each piston assembly comprising:

- a pump piston (28a, 28b, 28c and 28d) in the pump cylinder (8);

- a piston rod (30a, 30b, 30c and 30d) in the inwardly open movement region (24a, 24b, 24c, 24d); and

- a drive piston (32a, 32b, 32c and 32d) in the drive cylinder (26a, 26b, 26c, 26d);

- wherein two diametrically opposite piston rods (30b, 30d) are mechanically connected by means of a linkage (36) provided between them;

- wherein each of said two mechanically connected piston rods (30b, 30d) is movably connected to one of the other two piston rods (30a, 30c) via a cog wheel (38, 38') provided therebetween, both of said cog wheels (38, 38') being supported in the interlock section (10); and

- wherein each piston rod (30a, 30b, 30c and 30d) is provided with a pitch rack portion (40) facing towards said cog wheel (38, 38') and having a length corresponding to at least the stroke length of said pistons.

3. The piston pump (2) according to claim 2, characterised in that said four axial cylinder assemblies (A, B, C, D) distributed peripherally about the oil outlet channel (18) are distributed at an equal angle distance between each another.

4. The piston pump (2) according to claim 2 or 3, characterised in that said inwardly open

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movement region in the interlock section (10) is comprised of a partially cylinder-shaped grooves (24a, 24b, 24c, 24d).

5. The piston pump (2) according to claim 2, 3 or 4, characterised in that said mechanical linkage in the interlock section (10) is comprised of a tie-plate (36).

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